A.D. 1857 . . . . . N° 2154.

SPECIFICATION

OF

WILLIAM ALEXANDER CLARKE,

HOT AIR AND VAPOUR BATHS.

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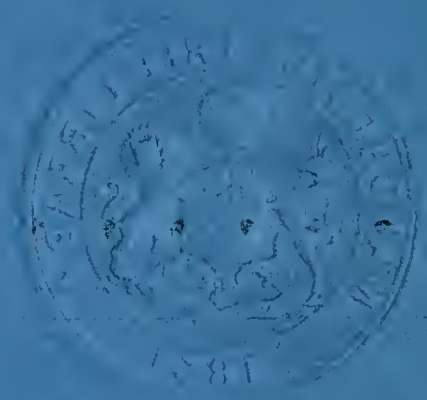

A.D. 1857 . . . . . N° 2154.

Hot Air and Vapour Baths.

LETTERS PATENT to William Alexander Clarke, of West Malvern, in the County of Worcester, Hydropathist and Thermopathist, for the Invention of "IMPROVEMENTS IN THE CONSTRUCTION OF AND MODE OF APPLYING HOT AIR AND VAPOUR BATHS."

Sealed the 22nd January 1858, and dated the 12th August 1857.

PROVISIONAL SPECIFICATION left by the said William Alexander Clarke at the Office of the Commissioners of Patents, with his Petition, on the 12th August 1857.

I, WILLIAM ALEXANDER CLARKE, of West Malvern, in the County of Worcester, Hydropathist and Thermopathist, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN THE CONSTRUCTION OF AND MODE OF APPLYING HOT AIR AND VAPOUR BATHS," to be as follows:—

My Invention of improvements in the construction of and mode of applying hot air and vapour baths consists, first, in constructing the bath in such a manner that the hot air or vapour may be introduced into the bath and diffused in a more uniform manner than heretofore, and the effect of the bath upon the patient may be at the same time more gentle and more beneficial and effective than is the case with baths of the ordinary construction and mode of application. The increased beneficial effect is produced in a great measure by the improved mode of applying the baths, and which forms the second part of my Invention or discovery.

When it is required to act upon the whole body at once, the bath, which I prefer to construct of zinc, must be made of such dimensions as to admit of

the body lying in a recumbent and nearly, if not quite, horizontal position, for which purpose a wooden frame or board or other contrivance is placed in the bath to support the body. The head of the patient extends beyond the end of the bath, and is supported by a board or other convenient contrivance provided for the purpose. A groove or channel is made all round the upper edge of the bath, and when the patient has been placed in the bath on the recumbent board a zinc or other cover of a domed or other suitable shape is placed on the bath, in such a manner that the lower edges of the cover are received in the groove or channel made round the upper edge of the bath, and by filling this groove or channel with water a steam-tight joint all round the bath will be obtained, except at that part where the head of the patient extends beyond the cover. This part is also made as steam-tight as possible by means of wet blankets or cloths or other suitable contrivances placed round the neck of the patient. Steam or hot air is admitted to the interior of the bath by means of a perforated pipe arranged in a serpentine direction or other convenient manner, so that the vapour may be generally diffused over the lower part of the bath. A short distance above the perforated pipe, and beneath the frame or board upon which the patient is lying, is placed a sheet of perforated zinc, which will have the effect of causing the vapour to be more perfectly diffused throughout the bath, and preventing any rush or jet of hot vapour from striking or impinging directly upon any part of the body of the patient.

By means of this arrangement vapour of a much higher temperature may be safely employed than in the ordinary construction of vapour bath, and by placing the body in a recumbent and nearly horizontal position the tendency of a flow of blood to the head is prevented.

The same bath may be made useful for submitting the arms or legs to the action of vapour or hot air by making suitable holes in some convenient part of the apparatus to receive these limbs, but I prefer to employ a distinct apparatus for the purpose, as one of much smaller size will do for the limbs than for the whole body, and it will be found more convenient and economical to manage. In applying the vapour or hot air bath to limbs, I provide the holes or apertures through which the limbs are introduced to the bath with strong vulcanized india-rubber or other ligatures, with which I surround the limb, for the purpose of stopping the circulation of the blood while the limb is in the bath. When this is the case I am enabled to employ vapour of a greatly increased temperature, even to as high a degree as 200 degrees Fahrenheit, not only without danger, but with great advantage to the patient.

It will, of course, be understood that steam, hot air, or vapours of various

kinds may be introduced into my improved baths through the perforated pipes; and I would observe that, if desired, the perforated pipes may be dispensed with, and a perforated false bottom employed in its stead; but in practice I have found the arrangement above described to be the most convenient for the purpose.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said William Alexander Clarke in the Great Seal Patent Office on the 12th February 1858.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, WILLIAM ALEXANDER CLARKE, of West Malvern, in the County of Worcester, Hydropathist and Thermopathist, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twelfth day of August, in the year of our Lord One thousand eight hundred and fifty-seven, in the twenty-first year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said William Alexander Clarke, Her special license that I, the said William Alexander Clarke, my executors, administrators, and assigns, or such others as I, the said William Alexander Clarke, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN THE CONSTRUCTION OF AND MODE OF APPLYING HOT AIR AND VAPOUR BATHS," upon the condition (amongst others) that I, the said William Alexander Clarke, by an instrument in writing under my hand and seal, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said William Alexander Clarke, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement, reference being had to the Drawings hereunto annexed, and to the letters and figures marked thereon (that is to say):—

My Invention of "Improvements in the Construction of and Mode of Applying Hot Air and Vapour Baths," consists, first, in constructing the bath

in such a manner that the hot air or vapour may be introduced into the bath and diffused in a more uniform manner than heretofore, and the effect of the bath upon the patient may be at the same time more gentle and more beneficial and effective than is the case with baths of the ordinary construction and mode of application. The increased beneficial effect is produced in a great measure by the improved mode of applying the baths, which forms the second part of my Invention or discovery.

When it is required to act with vapour or steam upon the whole body at once, the bath, which I prefer to construct of zinc, must be made of such dimensions as to admit of the body lying in a recumbent and nearly, if not quite, horizontal position, for which purpose a wooden frame or board or other contrivance is placed on ledges in the bath to support the body. The head of the patient extends beyond the end of the bath, and is supported by a board, rest, or other convenient contrivance provided for the purpose. A groove or channel is made all round the upper edge of the bath, and when the patient has been placed in the bath on the recumbent board or frame a zinc or other cover of a domed or other suitable shape is placed on the bath, in such a manner that the lower edges of the cover are received in the groove or channel made round the upper edge of the bath, and by filling this groove or channel with water a steam-tight joint all round the bath will be obtained, except at that part where the head of the patient extends beyond the cover. This part is also made as steam-tight as possible by means of blankets or cloths or other suitable contrivances placed round the neck of the patient. Steam or vapour is admitted to the interior of the bath by means of a perforated pipe arranged in a serpentine direction or other convenient manner, so that the vapour may be generally diffused over the lower part of the bath. A short distance above the perforated pipe, and beneath the frame or board upon which the patient is lying, is placed a sheet of perforated zinc, which will have the effect of causing the vapour to be more perfectly diffused throughout the bath, and will prevent any rush or jet of hot vapour from striking or impinging directly upon any part of the body of the patient.

By means of this arrangement, vapour at a much lower temperature than is found efficient when employed in the ordinary construction of vapour bath may be used, and its action may be continued for a much longer time than usual; and by placing the body in a recumbent and nearly horizontal position, the tendency of a flow of blood to the head is prevented, and the desired end and aim of applying the action of steam or vapour to the body is more effectually attained by being enabled to remain under the influence of the hot vapour for a much greater length of time than usual.

The same bath may be made useful for submitting the arms or legs to the action of vapour or hot air, by making suitable holes in some convenient part of the apparatus to receive these limbs; but I prefer to employ a distinct apparatus for this purpose, as one of much smaller size than that required to act on the body of a full-grown person will do for the limbs, and it will be found more convenient and economical to manage. In applying the vapour or hot air bath to limbs, I provide the holes or apertures through which the limbs are introduced to the bath with strong vulcanized india-rubber or other ligatures, with which I surround the limb, for the purpose of stopping the circulation of the blood while the limb is in the bath. When this is the case I am enabled to employ vapour of a greatly increased temperature, even to as high a degree as two hundred degrees Fahrenheit, not only without danger but with great advantage to the patient.

It will of course be understood that steam, hot air, or vapours of various kinds may be introduced into my improved baths through the perforated pipes or otherwise; and I would observe that, if desired, the perforated pipes may be dispensed with and a perforated false bottom employed in its stead; but in practice I have found the arrangement above described to be the most convenient for the purpose.

In order, however, that my Invention may be clearly understood, I have in the accompanying Drawings shewn various views of different forms of vapour and hot air baths, constructed suitable for operating upon either the upper or the lower limbs or the whole body of a person.

Fig. 1 is a longitudinal vertical section of one of my improved vapour baths intended to receive and operate upon the whole body of an adult; Fig. 2 is a transverse vertical section of the same; and Fig. 3 is a plan view of the bath with the recumbent frame and perforated metal plate removed, in order to expose the coil of perforated metal pipe through which the steam or vapour is admitted to the interior of the bath. *a*, *a*, *a*, *a*, represent the external metal casing which forms the lower part of the bath, round the upper edge of which is made a groove, as seen at a^*, a^*, a^*, a^*, in all the Figures. This groove is intended to receive the lower edge of the metal cover *b*, *b*, *b*, as seen in Figures 1 and 2. The patient is placed upon a moveable frame *c*, *c*, constructed by preference of wood, and covered either with webbing, or woven cane, or wickerwork, and supported upon ledges fixed to the sides of the bath, as shewn in Figures 1 and 2. Steam or vapour is admitted to the interior of the bath from any suitable boiler or generator, which is made to communicate with the coil of perforated metal pipe *d*, *d*, *d*, at the bottom of the bath. Upon the steam or vapour issuing from the holes in the coiled pipes *d*, *d*, it is

made to impinge against the under surface of the perforated metal plate *e*, *e*, which is placed upon ledges attached to the sides or ends of the metal casing, immediately above the coiled steam pipe *d*. The frame *c* is slightly inclined downwards towards the feet, as shewn in Fig. 1, and the head of the patient is supported outside the bath on the stool or rest *f*, which may be made adjustable as to height somewhat as music stools are now made. The bath is rendered as near as possible steam-tight round the neck of the patient by means of cloths or blankets, as shewn at *g* in Fig. 1. One, two, or more thermometers may be attached to the sides of the bath, for the purpose of indicating the temperature of the bath inside, so that it may be regulated as required.

Fig. 4 is a vertical section of another form of bath, in which the whole body of the patient may be operated upon with hot air or the vapour of a lamp; Fig. 5 is an external end elevation. In this instance the bath is not sufficiently long to admit of a full-grown person being extended at full length, as in Fig. 1, he must therefore be seated in a chair, which is the usual position when administering a hot air bath. This position may not be unsuitable for some cases when steam or vapour is to be applied; but for the reasons stated at the beginning of the Specification, I greatly prefer for the application of steam to the generality of cases the recumbent position shewn in Fig. 1. The bath shewn in Fig. 4, though somewhat different in form to that represented in Fig. 1, is precisely the same in the principle of construction. The lower part *a*, *a*, is provided all round its upper edge with a groove a^*, to receive the lower edge of the cover *b*, *b*. Instead of making use of an open frame *c*, Fig. 1, covered with cane work or other open work to support the body of the patient, as shewn in Figure 1, a perforated board c^* or a strong wooden frame is used to support a chair, in which the patient is placed. The hot air is produced by the combustion of spirit of wine or other suitable material in lamps placed on the framing beside the patient. An opening to admit air to support the combustion of the lamps is made at one end of the bath, and cloths or blankets are placed round the neck of the patient, to prevent the escape of the vapour at that part. One advantage of this form of bath is its small size, it is consequently less costly in construction, and more convenient for private use than that shewn in Figures 1, 2, and 3. It will be seen that the head of the patient projects through an opening left for that purpose in the top of the cover; this opening is closed by a plate which fits round the neck, and is further made air-tight by means of blankets or cloths, as in the former instance. For the convenience of converting this bath into a recumbent bath for children, the

cover may be provided with another opening, as at b^*, to fit over the neck of the patient in a similar manner to that shewn in Fig. 1, or, if preferred, a separate cover, provided with a suitable opening for the neck, as in Fig. 1, may be employed.

For operating upon the legs or arms a much smaller apparatus than either of the others will suffice. Fig. 6 is a longitudinal vertical section, and Fig. 7 is an end elevation of a vapour bath for operating upon the legs, either one or both. Fig. 8 is a longitudinal vertical section, and Fig. 9 is an end elevation of a vapour bath for operating upon one or both arms. It will be seen that the leg bath, Figures 6 and 7, is provided with a moveable cover *b*, which fits in a groove a^* made in the lower part *a*, as in the former Figures, and that a tressle, table, or support is placed inside to support the legs, or they may be made to rest upon the wooden frame *c*. In Figures 8 and 9 the bath is made in one part or chamber, and consequently the groove a^* of the former Figures is dispensed with. The holes or apertures at the end of the bath, and through which the arms or legs are passed, as shewn in Figures 6 and 8, are fitted with metal or other rings, whereby a ligature of india-rubber or some other elastic waterproof material is secured. These rings or fittings are shewn detached, and drawn upon an enlarged scale, at Figures 10 and 11. A metal ring *h*, of suitable size, is secured by screws or otherwise to the end of the bath, a washer *i*, of leather, hemp, or other suitable elastic material, being placed between the ring *h* and the end of the bath to make a secure and steam-tight joint. A half-round annular groove is made round the upper side of this ring for the purpose of receiving another metal ring *j*, whereby the circular piece of vulcanized india-rubber *k*, that is to form the ligature, is held in the annular groove of the piece *h*. These several parts are held together by an outer ring *l*, which, when screwed on or fastened by screws, bolts, or otherwise, will secure all the parts together, and form a perfectly steam-tight joint. The vulcanized india-rubber or other material which forms the ligature is made sufficiently thick and strong to very tightly compress the limb and to stop the circulation of blood therein. Steam or vapour of a much higher temperature than is ordinarily employed can then be used with advantage, and without occasioning any pain or inconvenience to the patient, and consequently the action on the diseased limb will be much more energetic than heretofore.

Having now described my Invention of "Improvements in the Construction of and Mode of Applying Hot Air and Vapour Baths," and having explained the manner of carrying the same into effect, I would observe, that the mode or modes herein set forth and described of applying hot air and vapour baths

will be found to have a much more energetic and beneficial effect on the human frame than the modes usually employed. In conclusion, I claim as the Invention secured to me by Letters Patent as aforesaid,—

First, the improved mode of constructing hot air or vapour baths as herein described. And in reference to the bath for the whole body, I claim the combination of the perforated steam pipe and the perforated plate with the moveable supporting frame, the whole enclosed within a close case made steam-tight by means of the water groove round the upper edge of the lower part of the bath. And in reference to the baths for operating the arms or legs only of a patient, I claim the arrangement and construction of parts herein shewn and described, or any mere modification thereof. I claim particularly the use of a strong vulcanized india-rubber or other elastic band or ligature which, when applied to the limb, will compress the blood vessel and stop the circulation while the limb is being operated upon in the bath.

Second, I claim operating upon the patient, or administering hot air or vapour baths while the patient is in a recumbent position, as shown in Fig. 1, so that all the beneficial effects of the bath may be obtained without any of the inconveniences resulting from the present modes of administering such remedies; I also claim the employment or application of ligatures to limbs to stop the circulation of the blood while the limb is being operated upon in the bath.

In witness whereof, I, the said William Alexander Clarke, have hereunto set my hand and seal, the Sixth day of February, in the year of our Lord One thousand eight hundred and fifty-eight.

WM ALEXR CLARKE. (L.S.)

Witness,

J. W. Moffatt,

66, Chancery Lane,

LONDON:
Printed by George Edward Eyre and William Spottiswoode,
Printers to the Queen's most Excellent Majesty. 1858.

FIG. 3.

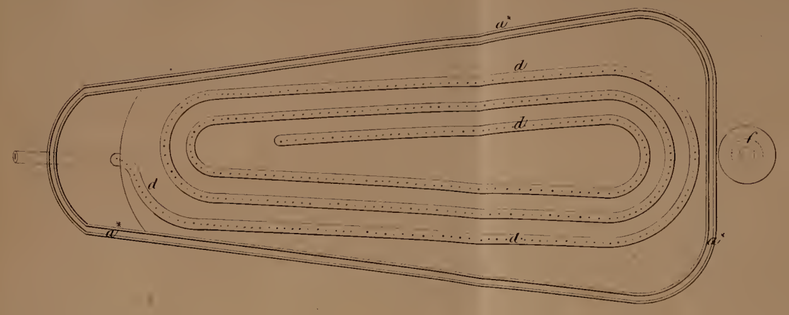

FIG. 10.

FIG. 11.

FIG. 2.

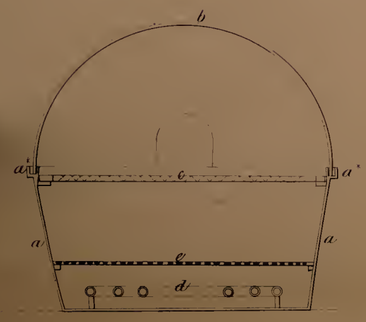

FIG. 1.

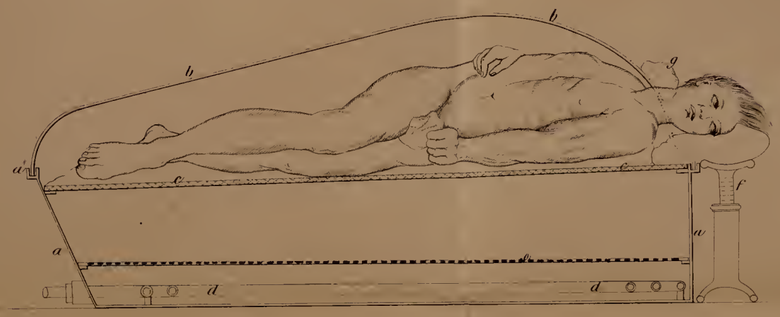

FIG. 7.

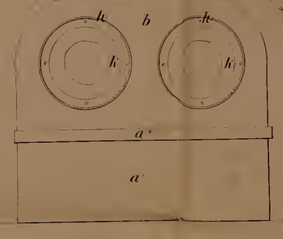

FIG. 6.

FIG. 5.

FIG. 4.

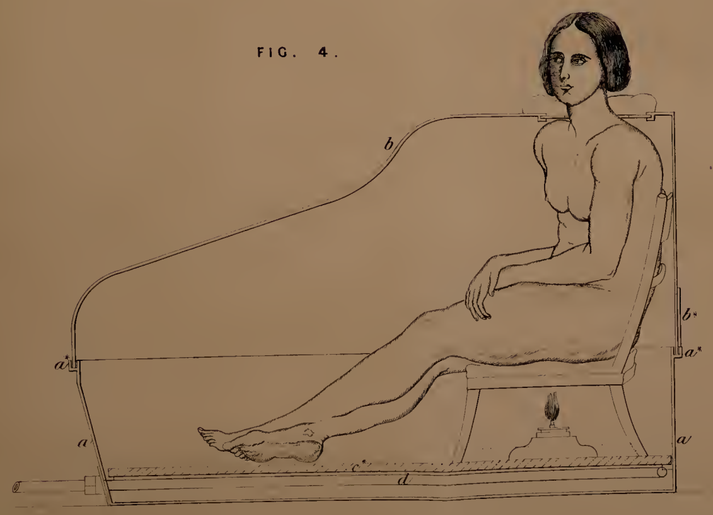

FIG. 9

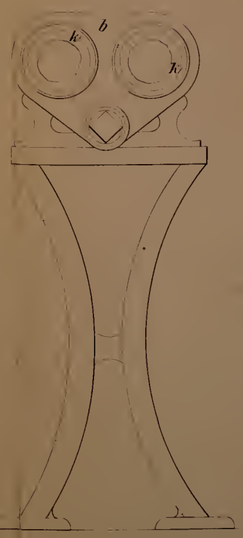

FIG. 8.

The tiled drawing is partly colored

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